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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,414	09/23/2004	Aweke Negash Lemma	NL 020241	8042

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EXAMINER	
LAFORGIA, CHRISTIAN A	
ART UNIT	PAPER NUMBER
2139	
MAIL DATE	DELIVERY MODE
02/26/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/509,414	LEMMA ET AL.	
	Examiner	Art Unit	
	Christian LaForgia	2139	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 November 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9,10 and 13-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9,10 and 13-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 February 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment of 29 November 2007 has been noted and made of record.

2. Claims 1-7, 9, 10, and 13-17 have been presented for examination.

3. Claims 8, 11, and 12 have been cancelled as per Applicant's request.

Response to Arguments

4. Applicant's arguments regarding the prior art rejections filed 22 August 2007 have been fully considered but they are not persuasive.

5. The Examiner disagrees with the Applicant's allegation that Johnston does not teach that the integral over the window function is zero and that Johnston's window function only produces positive values. The specification of the instant invention states that "Fig[ure] 2 shows a window shaping function as a function of time according to a preferred embodiment of the present invention[;] [t]he integral over the window shaping function is zero i.e. the total positive area of the function is equal to the total negative area (such that the average area is zero)." For the sake of clarity, Figure 2 is reproduced here:

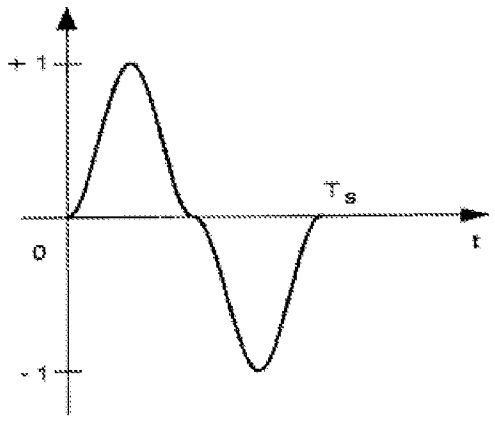
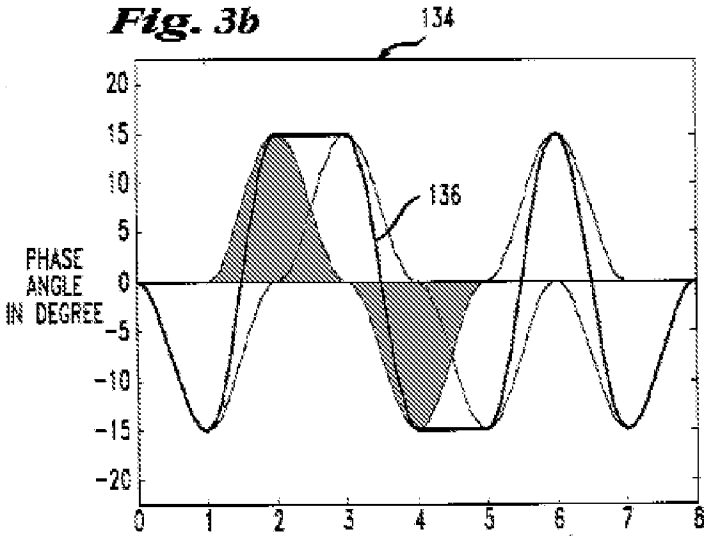


FIG.2

The Applicant argues that Figure 3a is representative of the window function disclosed in Johnston. The Examiner disagrees, and believes that Figure 3b is more illustrative of the window function, and, again, for the sake of clarity is provided below. The darkened section of Figure 3b is indicative of a window function embedded in a signal. As the Applicant will note, the window function over the period from 1 to 5 (and likewise, the clear period from 0 to 4) results in the total positive area of the function being equal to the total negative area, such that the average area is zero.



6. Since Figure 3b of Johnston shows a window function that results in the total positive area of the function being equal to the total negative area, such that the average area is zero as disclosed by figure 2 and page 5, lines 16-19 of the instant application, Johnston teaches wherein the integral over the window shaping function having a predetermined width is zero and the rejection is maintained.

7. Even assuming *arguendo* that Johnston does not teach that the integral over the window function is zero, very little patentable weight should be afforded to wherein the integral over the window function is zero. According to *Texas Instruments Inc. v. U.S. International Trade Commission,* 988 F.2d 1165, 172 [26 USPQ2d 1018] (Fed. Cir. 1993), a where[in] clause in a method claim is not given weight when it simply expresses the intended result of a process step

positively recited. In this case, the wherein the integral over the window function is zero clause does not inform one of ordinary skill of the mechanics of how the smoothly varying signal is embedded into the host signal. See *Minton v. National Association of Securities Dealers Inc.*, 336 F.3d 1373, 1381, 67 USPQ2d 1614, 1620 (Fed. Cir. 2003); see also MPEP § 2111.04. Since the Applicant does not argue any other features, and in the instant case no patentable weight is given to wherein the integral over the window function is zero, the rejections are maintained and made final.

8. Applicant's arguments regarding the 35 U.S.C. 103(a) rejections fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. The Examiner has shown above that Johnston discloses wherein the integral over a predetermined width of the window shaping function is zero.

9. See further rejections below.

Claim Rejections - 35 USC § 102

10. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

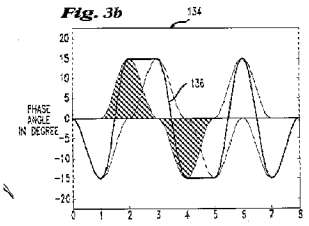
11. Claims 1, 5, 9, 10, and 13-17 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 7,131,007 to Johnston et al., hereinafter Johnston.

12. As per claims 1, 9, and 10, Johnston teaches a method of generating a watermark signal (column 2, lines 11-15) for embedding in a multimedia host signal (column 1, lines 22-25, i.e. digital watermarking means to embed some additional data into a host audiovisual signal that the watermark signal and the host signal are perceptually identical), the method comprising

taking a first sequence of values (column 2, lines 11-15, i.e. receiving an original signal);

applying a window shaping function having a predetermined width to said first sequence of values so as to form a smoothly varying signal (column 2, lines 11-15, i.e. using any known window function);

wherein the integral over the predetermined width of the window shaping function is zero



(such that the gray area is the window function over the period from 1 to 5 (and likewise, the clear period from 0 to 4) that results in the total positive area of the function being equal to the total negative area, such that the average area is zero,);

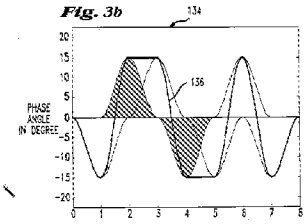
embedding said smoothly varying signal into the host signal (column 1, lines 22-25, column 5, lines 44-58, i.e. embedding the watermark in the k^{th} block of the audio signal).

13. Regarding claim 5, Johnson discloses phase modulation in column 5, lines 42-51. U.S. Patent No. 5,155,485 to Sako et al., hereinafter Sako teaches at column 1, lines teaches that digital modulating methods have been proposed to remove a DC component in a frequency spectrum of a modulated signal. Therefore, Johnston teaches wherein the frequency spectrum of the smoothly varying signal has a DC component less than a component of any non-DC peak within the frequency spectrum in disclosing phase modulation.

14. As per claims 13 and 16, Johnston teaches a method of detecting a watermark signal embedded in a multimedia signal, the method comprising:

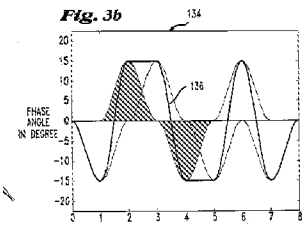
receiving a multimedia signal (column 7, lines 14-26, i.e. retrieving a watermark from a watermarked signal);

extracting an estimate of a watermark from the received signal by assuming that the watermark comprises a sequence of values to which a window shaping function having a predetermined width has been applied (Figure 4, column 7, line 29 to column 8, line 29), the integral over the predetermined width of the window function being zero (such that the gray area is the window function over the period from 1 to 5 (and likewise, the clear period from 0 to 4) that results in the total positive area of the function being equal to the total negative area, such that the average area is zero); and



processing the estimate of the watermark with a referenced version of the watermark so as to determine whether the received signal is watermarked (Figure 4, column 7, line 29 to column 8, line 29).

15. Regarding claims 14 and 17, Johnston teaches applying a window shaping function having the predetermined width to said received signal (column 2, lines 11-15, i.e. using any known window function), the integral over said predetermined width of the window shaping function being zero (such that the gray area is the window function over the period from 1 to 5 (and likewise, the clear period from 0 to 4) that results in the total positive area of the function being equal to the total negative area, such that the average area is zero).



16. Regarding claim 15, Johnston teaches wherein the watermark signal has a payload, and the method further comprising determining the payload of the watermark (Figure 4, column 7, line 29 to column 8, line 29).

Claim Rejections - 35 USC § 103

17. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

18. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston in view of U.S. Patent No. 5,401,897 to Depalle et al., hereinafter Depalle.

19. Regarding claims 2-4, Johnston does not teach wherein the window shaping function is a bi-phase window, comprising at least two Hanning windows of opposite polarities, with anti-symmetric temporal behavior.

20. Depalle teaches implementing a Hanning window (column 5, lines 35-57, i.e. Hann window), wherein the window shaping is a bi-phase window (column 5, line 64 to column 6, line 4, i.e. wherein a negative frequency term is added). The Applicant discloses at page 5, lines 16-21 that when a window shaping function is a bi-phase function it exhibits anti-symmetric temporal behavior.

21. It would have been obvious to one of ordinary skill in the art at the time the invention was made for the window function to be a Hanning window function that created a bi-phase window with anti-symmetric temporal behavior, since Depalle states at column 6, lines 1-4 that it would create a representation of the sound wave for the duration chosen for the window function. By creating a representation of the sound wave, it would enable one of ordinary skill in the art to

embed the watermarking data perceptually identical to the original signal, see Johnston, column 1, lines 22-25.

22. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston in view of U.S. Patent No. 6,209,094 to Levine et al., hereinafter Levine.

23. Regarding claim 6, Johnston does not disclose wherein each value of the first sequence is represented by a pulse train of width T_s so as to form a rectangular wave signal, the window shaping function also being of width T_s.

24. Levin teaches wherein each value of the first sequence is represented by a pulse train of width T_s so as to form a rectangular wave signal (Figure 17B), the window shaping function also being of width T_s (Figure 17A, column 13, lines 36-50).

25. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a pulse train of a rectangular wave signal and the width of both the audiovisual signal and window function being the same width, since Levine states at column 13, lines 28-35 and lines 45-50 that such a modification would result in smoother transitions that are less perceptible.

26. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston in view of **On the Use of Windows for Harmonic Analysis with the Discrete Fourier Transform**, hereinafter Harris.

27. Regarding claim 7, Johnston does not teach wherein said first sequence of values is convolved with the window shaping function so as to form said smoothly varying signal.

28. Harris teaches wherein said first sequence of values is convolved with the window shaping function so as to form said smoothly varying signal (p 62, paragraph bridging column 1 and column 2).

29. It would have been obvious to one of ordinary skill in the art at the time the invention was made to convolve the window function and the first sequence of values, since Harris states that convolving the signals in the frequency domain requires less memory or hardware since the samples of the cosine for the Hann window are already stored in the machine as the trig-table for the fast Fourier Transforms.

Conclusion

30. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

31. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

32. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian LaForgia whose telephone number is (571)272-3792. The examiner can normally be reached on Monday thru Thursday 7-5.

33. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kristine L. Kincaid can be reached on (571) 272-4063. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

34. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christian LaForgia/
Primary Examiner, Art Unit 2139

clf